

AQUATIC NUISANCE CONTROL  
IN ONTARIO - 1972

BIOLOGY SECTION  
WATER QUALITY BRANCH  
MINISTRY OF THE ENVIRONMENT  
FEBRUARY, 1973.

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## INTRODUCTION

In an effort to control the addition of chemicals to water by the public for the control of aquatic nuisances, the Biology Section in close co-operation with the Ontario Ministry of Natural Resources has continued to scrutinize and licence pesticide applications through the Aquatic Nuisance Control Permit System. Under Section 38 of the OWR Act, permits are granted to individuals having an understanding of the advantages and disadvantages of chemical manipulation of the aquatic environment and who have carefully considered alternate methods of controlling the nuisance condition prior to initiating chemical treatment.

This report summarizes aquatic nuisance control activities for 1972 under the following headings:

- A. PERMITS ISSUED, outlines the distribution and types of treatments authorized.
- B. PUBLIC INQUIRIES AND PERMITS NOT ISSUED, indicates the volume of inquiries received from the public and provides an outline of the reasons behind permit refusals.
- C. POST TREATMENT SURVEY, outlines efficacy of 1972 treatment recommendations.
- D. CHEMICALS USED, summarizes compounds used, total quantity and acreage treated.
- E. EVALUATIONS, outlines experimental programmes undertaken in 1972 by Biology Section personnel.

## PERMITS ISSUED

In 1972 a total of 207 permits were issued under Section 38 of the OWR Act authorizing the use of Chemicals to control aquatic nuisances. This figure brings to 1,550 the total number of permits issued since legislation was enacted in 1962. Table 1 indicates permit distribution over this period.

Since more than one treatment may be incorporated in a single permit, the total number of chemical treatments is in excess of the total number of permits issued for the year. A breakdown of the 219 treatments authorized in 1972 is provided in Table 2.

Table 3 shows the numbers and types of permits issued by each district office of the Ministry of Natural Resources. The majority of permits were issued for treatments in the Lindsay and Maple Forest Districts and comprised 29.1% and 28.2% respectively of the total. Principal water bodies treated in the Lindsay district (and corresponding number of permits) were Canal Lake (3), Chemong Lake (6), Crystal Lake (6), Pigeon Lake (8), Stoney Lake (7), Sturgeon Lake (2) and the Trent Canal System (5). Primary areas treated in the Maple district were Georgian Bay (17) and several farm ponds (27).

A post treatment survey conducted late in the year by the Biology Section showed that 23 of the 207 permits issued were not ultimately required by the permittees.

TABLE 1

ANNUAL PERMIT TOTAL SINCE INTRODUCTION OF THE SYSTEM

<u>YEAR</u>	<u>PERMIT TOTAL</u>
1962	140
1963	64
1964	53
1965	41
1966	110
1967	137
1968	185
1969	219
1970	182
1971	212
1972	207
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TABLE 2

COMPOSITION OF 1972 APPROVED TREATMENTS

Type of Control	Number of Treatments	Number of Permits
Herbicides		
Algae	43	
Submerged aquatic weeds	145	194
Emergents	19	
Piscicides		
Ministry of Natural Resources	1	3
Other	2	
Larvicides		
Ontario Hydro	3	
Ministry of the Environment & Research	2	8
Private	3	
Molluscicide	1	1
Leechicide	0	0
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	219	* 206

\* Addition of one blanket permit to the Ministry of Natural Resources for treatments of less than 1 acre for fish eradication bring the total to 207.

TABLE 3

NUMBERS AND TYPES OF PERMITS IN EACH  
MINISTRY OF NATURAL RESOURCES DISTRICT

District	Aquatic Vegetation	Black Fly & Mosquito	Coarse Fish	Leeches	Swimmer's Itch	TOTAL
Cochrane	0	1	0	0	1	2
Fort Frances	0	1	0	0	0	1
Kenora	3	0	0	0	0	3
Kemptville	17	0	1	0	0	18
Lake Erie	6	0	0	0	0	6
Lake Huron	29	0	0	0	0	29
Lindsay	58	1	1	0	0	60
Maple	57	0	1	0	0	58
Parry Sound	10	1	0	0	0	11
Pembroke	1	3	0	0	0	4
Sault Ste. Marie	0	1	0	0	0	1
Tweed	13	0	0	0	0	13
White River	0	0	0	0	0	0
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TOTAL	194	8	3	0	1	206*

\* The addition of one blanket permit to the Ministry of Natural Resources for treatments of less than 1 acre for fish eradication brings the total to 207.



PUBLIC INQUIRIES AND PERMITS NOT ISSUED

In 1972, the Biology Section answered approximately 1088 inquiries concerning aquatic nuisances and their control; an increase of 50 over 1971. A breakdown of these inquiries is as follows:

<u>Subject</u>	<u>Percent of Total Inquiries</u>
Algae and aquatic vegetation control	37
Ponds - water, weed and fish management	12
Black Fly and Mosquito control	5
Leech control	2
Piscicides	< 1
Swimmer's Itch control	< 1
Miscellaneous - educational inquiries etc.	44

In the case of 9 inquiries, advice was given discouraging the use of chemicals as a remedial measure, since it was felt that chemical treatment would simply replace one problem with another, though in a few instances the condition was so minor that chemical use was unwarranted. In addition, 1 treatment was refused because the application was received too late in the year for satisfactory treatment results, and 6 were refused because control could not be achieved by chemicals under the specified conditions. Eleven applicants failed to answer correspondence requesting additional information. A land developer was refused because treatment was not related to an established problem, and one commercial applicant was refused because he did not hold the appropriate licence.

POST - TREATMENT SURVEY

Of the 207 permits issued in 1972, 194 were issued for the use of aquatic herbicides. To assess the effectiveness of recommended herbicide applications, a post-treatment questionnaire was circulated to the permittees. One hundred completed forms (52%) were returned by the year's end (December 10/72). Results of the survey are tabulated

in Table 4. Since the number of replies in each category are proportional to the permits issued, the returns accurately reflect the results achieved through chemical treatments in 1972.

Results of treatments, as judged by the permittees themselves, were largely satisfactory. Less successful results may be attributed to the difficulty in curtailing development of filamentous algae which was quite prolific in some situations. Other factors such as presence of resistant species of vegetation and inappropriate time of application (as outlined in the 1971 report) may have influenced the results achieved.

The questionnaire brought to light two additional points of interest:

- A. 23 permits (9 algicide and 14 herbicide) which had been approved and issued were not undertaken. One of these was the proposed experimental use of Cutrine for the control of filamentous algae at Ontario Place.
- B. Twelve minor violations were observed when the issued permit was compared to the questionnaire. These involved application of chemical outside the stipulated time interval or application of the wrong quantity of chemical. In all cases, follow-up letters will be mailed to these individuals pointing out their non-compliance and cautioning them with respect to future infractions.

Owing to the valuable information gained through return of the questionnaires, it is the intention of staff to continue this post-treatment survey procedure.

#### CHEMICALS USED

The total quantity of chemicals used and acreages treated in 1972 are indicated in Table 5.

TABLE 4POST-TREATMENT SURVEY 1972

	Number of Replies (87)	% Break- down of Replies	% Breakdown Total Herbicide Permits (194)	
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Type of Treatment				
Algae	17	20	21	(40)
Submergents	67	77	74	(143)
Emergents	3	3	5	(11)
Type of Treatment Area				
Pond, Reservoir	24	28	28	(53)
Lake, Bay	55	63	60	(117)
River, Canal	8	9	12	(24)
Subjective Interpretation of Results of Treatment				
Excellent	18	21		
Good	36	41		
Fair	19	22		
Poor	12	14		
Treatment results not yet evident	2	2		
Number of applicants who obtained a permit prior to 1972	53	61		
Number of applicants new in 1971	34	39		
Number of applicants wishing renewals for 1973	82	94		
Number of applicants not wishing renewals	4	5		
Number of applicants undecided	1	1		
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TABLE 5

Quantity of chemical used and acreages treated 1972 \*

Pesticide	% active ingredient	Type of Control	Number of Applications	Total Quantity (product) used	Total area or Volume treated
Abate 4E	43	black fly	4	unknown	unknown
Abate 5C		mosquito	1	1 capsule	1320 sq. ft.
Amitrol - T	21.1	emergents	1	38 lbs.	.75 acres
Aquacide	20	submergents	1 (exp.)	20 lbs.	.2 acres
Aqua-Kleen	20	submergents	1	250 lbs.	3 acres
Aquathol (liquid)	19.2	submergents	2	10 gals.	2 acres
Aquathol (gran.)	10.1	submergents	1	50 lbs.	1.4 acre-ft.
Copper sulphate	100	algae	40	932.1	279.3 acre-ftt.
Copper sulphate	100	Swimmer's Itch	1	180 lbs.	.75 acres
Crop Rider	20	submergents	1	25 lbs.	1.75 acre-ft.
Dalapon	85	emergents	5	30.5 lbs.	2 acres
Diquat (Reglone 'A')	20	submergents	125	548 gals	300 acres
Diuron (Karmex)	80	algae & submergents	3	34.5 lbs.	24.75
Methoxychlor	25	black fly	3	unknown	unknown
Paraquat (Gramoxone)	20	emergents	6	12.9 gal.	12.26 acres
Pro Noxfish	5	coarse fish	2	27.2 gals	77.5 acre-ft.
Simazine (Princep)	80	algae & submergents	11	303.6 lbs.	11.26 acres
2,4-D iso-octyl ester	50	emergents	6	2.73 gals	3.6 acres
2,4-D amine	50	emergents	1	748 gals.	187 acres
Warbicide 5	5	coarse fish	1	10 lbs.	2.5 acre-ft.

\* Figures represent the accumulation of data up to December 31, 1972 only. Further information with respect to the actual amount of chemicals used was received after this report was written.

### Herbicides

As outlined in the Ontario Ministry of Agriculture and Food Publication 75, the 1972 aquatic herbicide recommendations included copper sulphate or Cutrine (algae); simazine or diuron (algae and submergents); diquat or endothall (submergents); 2,4-D iso-octyl ester (water lilies); dalapon, amitrole, paraquat or 2,4-D amine (emergents); and 2,4-D ester or 2,4-D amine (water milfoil only).

As in previous years, diquat (Reglone 'A') was the most commonly used herbicide for the control of submerged aquatic weeds which constituted the major nuisance problem in the province. 137 of the 143 (95.8%) submergent vegetation control permits authorized the use of this chemical.

### Larvicides

Black fly and mosquito larviciding accounted for less than 4% of the permitted treatments. A breakdown of the 8 permits issued is shown in Table 6.

### Piscicides

3 permits were issued authorizing fish control activities, 1 permit to the Ministry of Natural Resources and 2 to private pond owners and associations. Rotenone was the fish toxicant used in all operations, either as Pro-Noxfish or Warbicide 5. The use of 27.2 gallons of Pro-Noxfish was authorized (in 2 permits) to treat 77.5 acre-feet of water and 10 lbs. of Warbicide 5 was authorized (in 1 permit) in treatment of 2.5 acre-feet. Also, a blanket permit was issued to the Ministry of Natural Resources for areas less than 1 acre in size to facilitate spot sampling of fish populations and small reclamation projects.

### Others

One swimmer's itch control permit was issued to the City of Timmins for the use of 180 pounds of copper sulphate over 30,000 square feet of beach area in Gillies Lake to enable the municipality

TABLE 6LARVICIDE PERMITS 1972

Purpose of Treatment	Number of Permits	Applicant	Product Used	Total Quantity	Area Treated
Mosquito Larviciding	1	Private pond- Owner	Abate 5C	1 capsule	1320 sq.ft.
Black Fly Larviciding	2	Ontario Hydro	Meth-oxychlor	A.C.W.	
	2	Tourist Area	Abate 4E	A.C.W.	
	1	Rio Algom Mines	Abate 4E	A.C.W.	
Research	1	Atomic Energy of Canada	Meth-oxychlor	0.2 pounds	50,000 cu.ft
	1	Town of Deep River	Abate 4E	A.C.W.	

\* A.C.W. (as conditions warrant) refers to permits in which a specific rate of chemical application was authorized.

to implement their swimming programme. Biology Section staff held a meeting with municipal officials at Timmins to consider long-term solutions to swimmer's itch and other water usage problems in Gillies Lake.

Mosquito larviciding programme - Mara Township

As a third phase of the evaluation of the biting fly problem in Mara Township, seasonal and permanent residents in the area were circulated a questionnaire to assess their opinions as to the effectiveness of recent mosquito control programmes. The findings of the questionnaire were combined with results from earlier studies into the mosquito problem at Mara Township and are now available in report form.





**FASTENER**

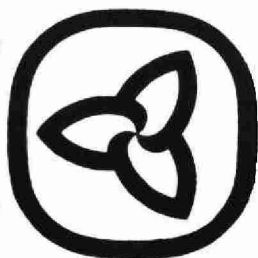
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